ABSTRAK

Telah dibuat detektor sintilasi dengan sintilator organik naphtalen ($C_{10}H_8$). Sintilator dibuat dengan cara menekan bubuk organik naphtalen bertekanan 150 kN/cm^2, diameter 5 cm dan memvariasi ketebalan sintilator mulai dari 107,14 mg/cm^2 sampai 801,50 mg/cm^2. Dari hasil pengujian didapat efisiensi detektor (6,7 ± 0,2)% pada ketebalan 687,00 mg/cm^2 untuk Cs-137, efisiensi detektor (59,3 ± 0,3)% pada ketebalan 286,25 mg/cm^2 untuk Sr-90, efisiensi detektor (2,5 ± 0,1)% pada ketebalan 157,56 mg/cm^2 untuk Co-60 dan efisiensi detektor (7,4 ± 0,7)% pada ketebalan 138,44 mg/cm^2 untuk Eu-152. Dan ketebalan optimum 286,25 mg/cm^2 untuk sumber radiasi Cs-137, Sr-90, Co-60 dan Eu-152.

ABSTRACT

The organic scintillator detectors made of naphtalene ($C_{10}H_8$) had been fabricated and tested. For this purpose the naphtalen powder are pressed at 150 kN/cm^2. The diameter of pressed powder is 5 cm and the density thickness of the scintillator are variated from 107.14 mg/cm^2 to 801.50 mg/cm^2. From test result, it's found that the efficiency is (6.7 ± 0.2)%. This efficiency achieved at the density thickness of scintillator 687.00 mg/cm^2 for Cs-137. While for Sr-90 the efficiency is (59.3 ± 0.3)% at the density thickness of scintillator 286.25 mg/cm^2, for Co-60 the efficiency is (2.5 ± 0.1)% at the density thickness of scintillator 157.56 mg/cm^2 and for Eu-152 the efficiency is (7.4 ± 0.7)% at the density thickness of scintillator 138.44 mg/cm^2. For point sources of Cs-137, Sr-90, Co-60 and Eu-152, the optimum thickness density is 286.25 mg/cm^2.